

**REMARKS**

At the time of the Office Action dated August 10, 2006, claims 1-35 were pending in this application. Of those claims, claims 18-30 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. §1.142(b).

In this Amendment, claims 1, 2, 5-8, and 31 have been amended, claims 9-17 and 32-35 canceled, without prejudice, reserving right to prosecution in a continuation application, and new claims 36-38 added. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification.

**Claims 1-5 have been rejected under 35 U.S.C. §102(b) as being anticipated by Ono et al.<sup>1</sup>**

The Examiner maintained his position on the rejection of the claims by relying on Ono et al. However, Applicants submit that a semiconductor device including, among other things, “a fluorine- or carbon-containing region extending from the element isolation region over a junction interface between said first conductivity type semiconductor region and said second conductivity type source/drain regions,” as recited in independent claim 1.

In the statement of the rejection, the Examiner specifically asserted as follows:

Ono discloses fluorine has been introduced into the channel region (col. 13, lines 10-12). The channel region extends over a junction interface between the source/drain region (16/22) and the substrate 1. Therefore, Figures 1-4 of Ono disclose fluorine has been introduced in a region extending from the element isolation region over a junction interface between said first conductive type region and said second conductivity type source/drain regions. It is considered that “a region” is a region extending from the isolation region including the source/drain

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<sup>1</sup> Applicants presume that the Examiner has rejected claims 1-5, 7-9, 12-17, and 31-34.

region and the channel. Since the fluorine is at least in the channel, the fluorine is in the claimed region.

See the paragraph bridging pages 2 and 3 of the Office Action (emphasis added). Applicants disagree with the Examiner's interpretation of the disclosure of Ono et al. The portion of Ono et al., upon which the Examiner relied, describe as follow:

The second heat treatment is to diffuse fluorine into the channel region under the gate electrode. The fluorine introduced into the surface of the source and drain formation regions adjacent to the gate electrode is driven into the region under the gate electrode.

Column 13, lines 10-14. What this description states is that the fluorine is diffused into a channel region through a surface of source and drain formation regions. There is no teaching that "fluorine has been introduced in a region extending from the element isolation region over a junction interface between said first conductive type region and said second conductivity type source/drain regions" (see the Examiner's assertion, above). Thus, Applicants stress that there is no evidential support for the Examiner's assertion "[s]ince the fluorine is at least in the channel, the fluorine is in the claimed region."

In addition, since Ono et al. describe introducing fluorine "into the channel region," it is apparent that the channel region does not extend from field oxide film 2 (element isolation region). In contrast, claim 1 recites "a fluorine- or carbon-containing region extending from the element isolation region."

Accordingly, Ono et al. neither disclose nor suggest forming a region containing fluorine or carbon extending from an element isolation region, as recited in claim 1. The above discussion is applicable to independent claims 5 and 31 each reciting at least a fluorine-containing region extending from the element isolation region over a junction interface between said first conductivity type semiconductor region and said second conductivity type source/drain

regions. Dependent claims 2-4, 7 and 8 are also patentably distinguishable over Ono et al. at least because these claims include all the limitations recited in independent claims 1 and 5. It is further noted that the rejection of claims 9, 12, 13-17, and 32-35 has been rendered moot by cancellation of those claims. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

**Claims 5 and 6 have been rejected under 35 U.S.C. §102(b) as being anticipated by Mandelman et al.**

The Examiner also maintained his position on the rejection of claims 5 and 6 by relying on Mandelman et al. However, Applicants submit that Mandelman et al. do not disclose a semiconductor device including, among other things, “a fluorine- or carbon-containing region extending from the element isolation region over a junction interface between said first conductivity type semiconductor region and said second conductivity type impurity region,” as recited in independent claim 5.

In the statement of the rejection, the Examiner, relying upon paragraph [0050] of Mandelman et al., asserted as follows:

[A]n element of carbon has been introduced into a region (97/99) extending from the isolation region over a junction interface between said first conductivity type semiconductor region and said second conductivity type impurity region (paragraph [050]). It is considered that “a region” is a region extending from the isolation region including the source/drain region and the area beneath the gate. Since the carbon is in the area beneath the gate, carbon has been introduced into the claimed region.

See the paragraph bridging pages 6 and 7 of the Office Action (emphasis added).

Applicants stress that region 97/99 identified by the Examiner does not extend from isolation region 20, as shown in Fig. 7 of Mandelman et al. In contrast, claim 5 recites “a fluorine- or carbon-containing region extending from the element isolation” (emphasis added).

With respect to the Examiner’s assertion “[S]ince the carbon is in the area beneath the gate, carbon has been introduced into the claimed region” in Mandelman et al., Applicants reply that there is no evidential support for such an assertion. In fact, the Examiner did not provide any support in the Office Action.

Based on the foregoing, Applicants submit that Mandelman et al. do not disclose or suggest a semiconductor device including all the limitations recited in independent claim 5. Dependent claim 6 is also patentably distinguishable over Mandelman et al. at least because the claim includes all the limitations recited in independent claim 5. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

**Claims 32-35 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Mandelman et al. in view of Ono.**

This rejection of claims 32-35 has been rendered moot by cancellation of the claims. Withdrawal of the rejection is, therefore, respectfully solicited.

#### **New Claims**

Applicants submit that new claims 36-38 are patentably distinguishable over Ono et al. and Mandelman et al. at least because these claims include all the limitations recited in independent claims 1, 5, and 31. Favorable consideration is respectfully solicited.

**Conclusion**

It should, therefore, be apparent that the imposed rejections have been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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